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SCIENTIFIC CAREERS IN CROPS RESEARCH

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SCIENTIFIC CAREER

Are you qualified to perform research that would lead to the production of new and improved varieties of crops on American farms? Are you taking college courses that will qualify you?

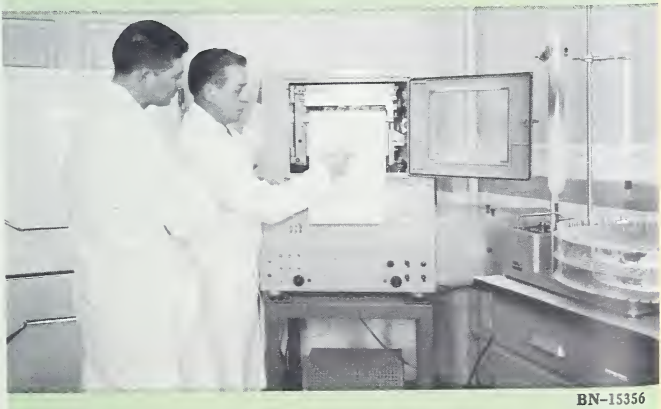
If so, you may be interested in employment in the Agricultural Research Service (ARS) of the U.S. Department of Agriculture. In ARS, the Crops Research Division uses well-trained research scientists: agronomists, botanists, chemists, geneticists, horticulturists, nematologists, plant pathologists, and plant physiologists.

This leaflet names the fields of research in which the Crops Research Division is active. It also lists salaries and job benefits, summarizes qualification requirements, and tells how to get additional information.

in Crops Research . . .

N-30901

Plant breeders seek rust-resistant plants grown from seeds from the world oats collection.



BN-15356

Plant pathologists use recording spectrophotometer to study the physical characteristics of plant viruses.

Research is conducted in these fields:

● **CROPS FOR FOOD AND INDUSTRIAL USES.** Development of new or improved varieties of cereal grains, vegetables, grasses, fruits, and nuts that are improved for disease resistance or tolerance, quality and yield for use as food. Development of higher quality cotton, cordage fibers, sugar, tobacco, soybeans, and peanuts that are improved for industrial use. *This work requires—*

Agronomists, botanists, chemists, geneticists, horticulturists, plant pathologists, virologists, and plant physiologists.

● **ORNAMENTAL PLANTS.** Development of new or improved varieties of plants for ornamental uses. *This work requires—*

Botanists, horticulturists, plant pathologists, and plant physiologists.

● **CROP PROTECTION.** Development of new or improved chemical control of weeds in cultivated crops; and in grazing and noncrop lands. Identification and control of nematodes; growth regulating chemicals; plant disease epidemics. *This work requires—*

Agronomists, chemists, horticulturists, nematologists, plant pathologists, and plant physiologists.

● **NEW CROPS.** Search for and introduction of new plants with improved characteristics for new or improved crops. *This work requires—*

Economic botanists, plant taxonomists, horticulturists, and agronomists.

Nature of the work

● **AGRONOMIST.** Performs research in breeding, production, and culture of field crops; relationships of plants and soil; conservation crop and turf establishment; management propagation and seed production; plant adaptation and varietal testing.

● **BOTANIST.** Performs research in taxonomy and nomenclature of plants; identification and description of plants and seeds; plant distribution and habits of growth; histochemical

studies of plants, fruits, and vegetables. Prepares revisions and monographs of plant groups.

CHEMIST. Performs research in chemical characteristics of plants and variety evaluation of chemical qualities; development of improved dusts, sprays, and aerosol formulations for plant protection.

PLANT GENETICIST. Performs research in inheritance and interaction of genetic characters, their environment, and basic physiological principles; development of more effective breeding methods and selection procedures; possible use of induced polyploidy and irradiation in crop improvement; cytogenetics and cytotaxonomy of plants.

HORTICULTURIST. Performs research in breeding, testing, propagation, and culture of fruits, vegetables, flowers, ornamental trees and shrubs; related problems of production, storage, and handling.

NEMATOLOGIST. Performs research in effects of nematodes on production and plant growth; distribution and spread; enemies, diseases, and other natural controls; cultural, rotational, chemical, and therapeutical control; taxonomy, physiology, and relationship to plants and soil.

PLANT PATHOLOGIST. Performs research in plant diseases caused by parasitic or nonparasitic micro-organisms and viruses; life cycles of disease-producing organisms; host-parasite relationships; effects of diseases on culture, harvest, transportation, and storage of plants; techniques for producing artificial epiphytotics of various diseases and methods for prevention and control.

PLANT PHYSIOLOGIST. Performs research to determine effects of light, temperature, moisture, nutrients, and applied chemical on the rate, kind, and amount of plant growth; effects and nature of substances that regulate growth and development; physical properties and chemical composition; maturity, quality, and storage life of plants.

EMPLOYMENT INFORMATION

Most of these positions are in the Federal competitive civil service. Appointments are made from lists of persons who qualify through appropriate civil service examinations. Some examinations require written tests; others require an evaluation of your education, training, and experience.

You may obtain announcements of civil service examinations, and application forms, from your college placement officer or from the Personnel Division, Agricultural Research Service, U.S. Department of Agriculture, Washington 25, D.C. The announcement will give detailed information on employment requirements.

Qualifications and salaries

The following summary applies to requirements for filling most of our professional research positions.

Grade	Entrance salary	Minimum requirements
GS–5	$4,565 $4,690 after 1–5–64	Bachelor's degree in appropriate field, with specific courses as described in the examination announcement, and pass a written test.
GS–7	$5,540 $5,795 after 1–5–64	Bachelor's degree plus 1 year of appropriate graduate work (30 semester hours), or Bachelor's degree with 1 year of progressive research experience, or Bachelor's degree with college average of "B" or better, or standing in upper 25 percent of class.
GS–9	$6,675 $7,030 after 1–5–64	Bachelor's degree plus (*a*) 2 years of appropriate graduate work (60 semester hours), or (*b*) 2 years of progressive research experience, or

		Completion of all requirements for the master's degree in an appropriate field within the past 2 years, and demonstrated superior ability in graduate studies.
GS–11	$8,045... $8,410 after 1–5–64	Completion of all requirements for the Ph. D. degree; or 3 years of progressively responsible research experience (or appropriate combination of experience and education) beyond the bachelor's degree level.
GS–12	$9,475... $9,980 after 1–5–64	Completion of all requirements for the Ph. D. degree in an appropriate field within the last 2 years, and demonstrated superior ability in graduate studies; or 3 years of progressively responsible, highly specialized research experience (or appropriate combination of experience and education) beyond the bachelor's degree level.

CROPS RESEARCH DIVISION

Dots show major work locations.

Some undergraduates are employed by ARS as student assistants for full-time summer work and for part-time work during the school year. High school graduates who have been accepted by or enrolled in an accredited college or university in an appropriate curriculum may be eligible for appointment at the rate of $3,560 a year ($3,620 after 1–5–64); students with 1 full academic year of college, at $3,820 a year ($3,880 after 1–5–64); students with 2½ full academic years of college, at $4,110 a year ($4,215 after 1–5–64).

Work locations: The Crops Research Division has its headquarters at Beltsville, Md. It employs scientists in over 100 other locations throughout the United States. Most of the field positions are at State or Federal research institutions.

Professional Growth and Recognition

Creative research environment.
Modern research facilities.
Association with outstanding scientists.
Interdisciplinary associations.
Individual professional recognition.
Authorship for original research.
Advanced training encouraged.

Job Benefits

Promotion based on achievement.
Regular salary increases.
5-day, 40-hour workweek.
Liberal vacation and sick leave with pay.
Excellent retirement system.
Low-cost life and health insurance.

RESEARCH SCIENTISTS UTILIZED:

Agronomists
Botanists
Chemists
Geneticists
Horticulturists
Nematologists
Plant Pathologists
Plant Physiologists

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